



**PATENT**

**ATTORNEY DOCKET NO.: KCX-484 (17155)**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: Chen, et al.	)	
	)	Examiner: Stephens, Jacqueline F.
Serial No.: 10/036,736	)	
	)	Art Unit: 3761
Filed: December 21, 2001	)	
	)	Deposit Acct. No.: 04-1403
Title: Sponge-Like Pad Comprising Paper	)	
Layers and Method of Manufacture	)	Client ID: 22827

**DECLARATION UNDER 37 C.F.R. 1.131**

We, Fung-Jou Chen, Julie Bednarz, Jeff Lindsay, Dawn Houghton, Leslie Taneri, Tammy Balzar, and Peiguang Zhou, declare:

1. We are the inventors of the claims of the patent application identified above and the inventors of the subject matter described therein.

2. U.S. Patent Number 6,993,805 of Prodoehl, et al. was filed Jun. 4, 2002, in the United States, and claims priority to U.S. Provisional Application No. 60/308,705, filed on Jul. 30, 2001.

3. Prior to Jul. 30, 2001, we conceived our invention as described and claimed in the subject application.

4. As evidence of our conception prior to Jul. 30, 2001, we are providing an Invention Disclosure signed on Jul. 12, 2001.

5. We were duly diligent at least from the signing of the Jul. 17, 2001, Invention Disclosure in filing the resulting patent application referenced above.

6. In the Invention Disclosure, Question 14 asks "Is commercial use imminent?" The answer on the Invention Disclosure states "1999 or earlier." However, this answer is incorrect now and at the time of the signing of the Invention Disclosure. To

our knowledge the products and methods described in the above patent application were not commercialized by Kimberly-Clark Corporation, Inc., or its affiliates, prior to the filing of the above patent application, if ever.

6. We acknowledge all statements made of our own knowledge in this declaration to be true and all statements made on information and belief in this declaration are believed to be true.

7. We further acknowledge that willful false statements and the like made in this declaration are punishable by fine or imprisonment, or both and may jeopardize the validity of the application or any patent issuing thereon.

_____	_____
Date	Fung-Jou Chen

_____	_____
Date	Julie Bednarz

_____	_____
Date	Jeff Lindsay

_____	_____
Date	Dawn Houghton

_____	_____
Date	Leslie Taneri

_____	_____
Date	Tammy Balzar

_____	_____
Date	Peiguang Zhou



# Invention Disclosure

Submitter:  
Send the signed original and one copy of this form to Kimberly-Clark Corporation, Patent Department, Neenah, WI. Answer all parts of this form. Two corroborators must understand the invention. The submitter(s) and both corroborators must sign and date the reverse side of this form in blue ink, as well as every additional sheet submitted with it. The last part of this form is recommended when additional sheets are required. If your group has a patent facilitator, preview the original with him or her.

Disclosure No.	17155
Department	
Recommended Attorney	
For Legal Department use only	

## Key Words

Cleansing pad, cleaning article, sponge, UCTAD, uncreped through-air dried tissue, nonwoven, abrasive, meltblown shown, spunbond, VIVA, Scott towel, thin when dry, thick when wet, children's toys, pad.

1. Title *sheets*

### Two-sided Sponge-like Cleaning Article Comprising Interbonded UCTAD Plies and a Nonwoven Surface

2. Description (Sign and date each page. Attach pertinent drawings, photographs, etc.)

a. Summary (Should disclose invention in general, nontechnical terms)

A low-cost, resilient pad for cleaning has been developed comprising a sponge-like internal structure made of resilient UCTAD tissue plies encased within a two-sided outer cover. The outer cover can have a soft, pliable surface on one side and an abrasive surface on the other. The abrasive surface can be made from a nonwoven such as a meltblown layer further treated with meltblown "shot," which comprises a coarse, nonuniform layer applied in a meltblown process deliberately operated to generate random globules of the polymer (typically polypropylene or another thermoplastic) interconnected with strands. The shot may be distinctly colored to make the abrasive element readily visible. The soft layer can comprise a nonwoven such as a meltblown, a spunbond, a bonded carded web, or a tissue-based layer such as a layer of UCTAD tissue (including a portion of a Scott® towel having a colored print), VIVA® towel, and the like.

The sponge-like properties of the internal element of the pad are provided by a plurality of resilient tissue layers, especially uncreped through-air dried (UCTAD) tissue preferably with interply bonding provided by a small quantity of bicomponent binder fibers deposited between the plies which are then thermally bonded. Good results can be obtained when the UCTAD tissue is made according to the K-C patent application filed under Docket 11,700.3, which teaches the combination of non-compressive drying to mold a three-dimensional tissue structure, wet strength additives such as Kymene, and wet resilient fibers such as BCTMP fibers. This wet-resilient UCTAD tissue maintains unusually high bulk when wet, even after being compressed. Indeed, a dry, calendered stack of such tissue, such as a stack of 10 or more plies of tissue having a basis weight of from 15 to 40 gsm, can expand substantially in thickness upon wetting, just as a densified cellulose sponge can do.

Interply bonding of a stack of UCTAD plies has been found to be especially helpful in improving the performance of the cleaning pad, for the bonding – especially bonding by binder fibers joined each layer to its neighbor layer – prevents significant slip or shear between plies and creates the feel of an integral article like a sponge rather than a stack of discrete tissue layers. This is manifest in the ability of the interply-bonded pad to spring back more quickly into its initial shape after being creased or folded, and to resist undesired slipping during scrubbing. Successful results have been obtained with only 2% by weight add-on of binder fibers sprinkled onto one surface of each ply, followed by heat treatment to activate the binder fibers.

Title **Two-sided Sponge-like Cleaning Article Comprising Interbonded UCTAD Plies and a Nonwoven Surface**

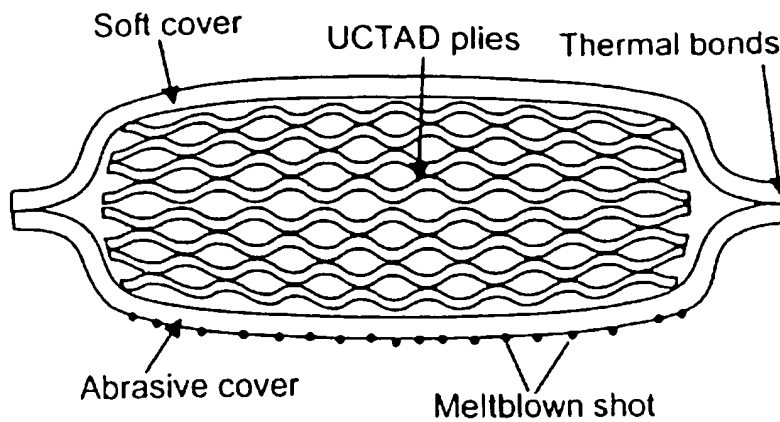


Figure 1. Cross-section of a resilient cleaning pad.

Bonding of the two portions of the outer cover requires particular attention. It has been found that thermal bonding of meltblown to meltblown can yield brittle bonds that are less durable during intense scrubbing with the product. Improved bonding and durability has been found with thermal bonds of spunbond to meltblown (both creped spunbond and uncreped spunbond have been used successfully), spunbond to spunbond, and meltblown to paper towels (VIVA®, BCTMP UCTAD towel or Scott® towel).

The product can be used as a scrub pad for cleaning dishes, for washing walls, for cleaning household objects, for ~~removing~~ <sup>cleaning</sup> grout on tiles, and so forth.

b. Detailed description, including specific embodiments and applicable alternatives, ranges and products, and process/apparatus variations.

A variety of materials other than or in addition to meltblown shot can provide the desired abrasiveness for good cleaning. Filler particles and microspheres, for example, can be attached to a tissue or nonwoven surface with adhesive to provide abrasiveness. An intrinsically abrasive nonwoven material can be used, such as a coarse PET or PP web with properties analogous to those found in ScotchBrite® pads or other cleaning structures. A towel or tissue layer comprising coarse fibers and having an abrasive texture can also be considered, such as high-yield softwood fibers through-dried on a coarsely textured TAD fabric offering "sharp" peaks and valleys and further treated with bonding agents or internal binder fibers.

The pads can comprise additional materials and functional layers or components. A portion of the pad can provide a soap, detergent or other cleaning agents when desired (e.g., a liquid composition in a

Submitter	<u>Fung-jou Chen</u> Fung-Jou Chen	Central Res./WRE Dept./Location	Signed	<u>July 12 2001</u> Month Day Year
Submitter	<u>Julie Bednarz</u> Julie Bednarz	Central Res./WRE Dept./Location	Signed	<u>July 12 2001</u> Month Day Year
Submitter	<u>Jeff Lindsay</u> Jeff Lindsay	Central Res./WRE Dept./Location	Signed	<u>July 12 2001</u> Month Day Year
Manager (Review)	<u>Ivan Schrod</u> Ivan Schrod	Res. Admin./WRE Dept./Location	Signed	<u>7/12/2001</u> Month Day Year

The foregoing signed disclosure was read and understood by me on the date hereinafter set forth.

Corroborator	<u>Thomas P. Jorgensen</u> Thomas P. Jorgensen	FT/WRE Dept./Location	Signed	<u>July 12, 2001</u> Month Day Year
Corroborator	<u>Thomas H. Schulz</u> Thomas H. Schulz	FT/WRE Dept./Location	Signed	<u>July 12, 2001</u> Month Day Year

## Invention Disclosure

### Title **Two-sided Sponge-like Cleaning Article Comprising Interbonded UCTAD Plies and a Nonwoven Surface**

breakable pouch for user-controlled release), as well as buffering agents, antimicrobials, skin wellness agents (lotions or hydrophobic skin barriers) to prevent harm to skin while cleaning, microencapsulated agents, and the like. The interstitial spaces between the textured internal plies in the scrub pad can be filled with other functional materials.

A barrier material may be placed on one side of the internal pad or pass through a portion of the internal pad to maintain dryness on one side of the pad while the other side is wetted. This may be useful when small quantities of a cleaning compound are to be used (e.g., a furniture polish, window washer, or a harsh agent such as is used cleaning an oven), wherein wetting the entire pad is undesirable. A removable barrier may be provided as well to allow the hand to remain dry during use.

The product may be provided with a protrusion or handle to improve the grip during scrubbing. In this case, only one side would probably be used for cleaning.

- c. How does the invention distinguish from what has been done in the past and what advantages are obtained? Identify related work done by others (*patents, journal articles, etc.*). Identify other related disclosures of which you may have knowledge, or other work within Kimberly-Clark Corporation within the same area.

3. I (We) first conceived the above idea on ~~March 2, 2001~~ *October 1998*
4. I (We) first disclosed the above idea to others on -.
5. The persons to whom the above idea was first disclosed are: -.
6. The first written description of the above idea is in the form of-.
7. The first sketch or drawing of the above idea was made on -.
8. The first sample illustrating the above idea was made - and is now located in WRE. Its sample number is -.
9. The above idea was first actually tried on \*\*\*. Describe how and when it was tried, including a complete description and date of the first time the idea was tried and, if the first attempt was unsuccessful, the first time it was successfully tried.
10. Has consumer use testing of this idea been carried out? N/A If "Yes," when? Describe testing:
11. Is consumer use testing planned for the future? If "Yes," when? Describe testing:
12. Has the idea been used in, or to produce, a product that was sold or offered for sale? No If "Yes," when? How used:
13. Has the idea been disclosed outside Kimberly-Clark Corporation? No If "Yes," when? To whom:

Was the idea disclosed under Confidential Disclosure Agreement? If "Yes," attach a copy of the agreement.

14. Is commercial use imminent? Unknown If "Yes," indicate the anticipated earliest date of commercial use. 1999 or earlier
15. List the names of everyone who has contributed to this idea. (*Those listed cannot be corroborators. The listed people should receive a copy of this form.*)

Names: Fung-Jou Chen, Julie Bednarz, Jeff Lindsay, Dawn Houghton, Leslie Taneri, Tammy Balzar

*Fung-jou Chen July 12, 2001*

*Julie Bednarz July 12, 2001*

*Jeff Lindsay July 12, 2001*

*Green D. S. 7/12/01*

*Thomas P. Jorgenson July 12, 2001*

*Thomas H. Schulz July 12, 2001*